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10/525,126

02/18/2005

Susan Douglas

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EXAMINER

NIEBAUER, RONALD T

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/525,126	<b>Applicant(s)</b> DOUGLAS ET AL.	
	<b>Examiner</b> RONALD T. NIEBAUER	<b>Art Unit</b> 1654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 8/1/07 and sequence info 12/28/07.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 25-50 is/are pending in the application.
- 4a) Of the above claim(s) 25-37,39-44 and 46-48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 38,45,49-50 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

Applicants amendments and arguments filed 8/1/07 are acknowledged and have been fully considered. Applicants corrected sequence listing dated 12/28/07 is acknowledged. Any rejection and/or objection not specifically addressed is herein withdrawn.

As noted previously, Group III (claims 38,41-43,45 and 47) and the species of SEQ ID NO:74 (claim 45(i)) have been elected. Claims 1-24 were previously cancelled. Claims 49 and 50 have been added.

Upon reconsideration, as discussed below, since claim 45 does not receive the priority date of 8/22/02 an updated search was performed that uncovered art on the elected species. Thus, the elected species is not free of the prior art. Any art that was found in the course of searching for the elected species is also cited herein.

Claims 25-37,39-44,46-48 remain withdrawn from further consideration, pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention/species, there being no allowable generic or linking claim.

Claims 38,45,49-50 are under consideration.

### ***Priority***

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 60/404,922 (8/22/02), fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application.

In the instant case, claim 45 recites a variety of amino acid sequences.

*Lack of Ipsis Verbis Support*

Application No. 60/404,922 (8/22/02) is void of support for all of the sequences recited in claim 45. It is noted that Table 4 of 60/404,922 provides support for the peptides of claim 45(a)-(p). However, 60/404,922 is void of literal support for the peptides of claims 45(q)-(az). In particular the sequences of the peptides of claims 45(q)-(az) are not recited in the specification, drawings, or tables of 60/404,922.

*Lack of Implicit or Inherent Support*

Section 2163 of the MPEP states: ‘While there is no in haec verba requirement, newly added claim limitations must be supported in the specification through express, implicit, or inherent disclosure’.

Although the above statement is with respect to new claim limitations, the analysis is similar in determining conditions for receiving the benefit of an earlier filing date.

As discussed above, Table 4 of 60/404,922 provides support for the peptides of claim 45(a)-(p). However, such Table would not lead one to all of the other sequences recited in claim 45. The specification of 60/404,922 (page 1 lines 16-27) recites a number of antimicrobial peptides. However, the specific peptides of claims 45(q)-(az) are not recited in the specification. As such, one would not conclude that Application No. 60/404,922 provides adequate support for the instant claims.

Since PCT/CA03/01323 (8/22/03) provides support, for example in claim 21, for claim 45 of the instant invention, the priority date used for searching for prior art for claim 45 of the instant invention is 8/22/03. It is noted that claims can not be listed as supported in part. However, claims can be amended to be drawn to peptides that are fully supported and the claims as a whole would receive the benefit of 60/404,922 as appropriate.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

**Claims 38,45,49-50** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the

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relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The MPEP states that the purpose of the written description requirement is to ensure that the inventor had possession, as of the filing date of the application, of the specific subject matter later claimed by him. The courts have stated:

“To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that ‘the inventor invented the claimed invention.’” *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997); *In re Gostelli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) (“[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.”). Thus, an applicant complies with the written description requirement “by describing the invention, with all its claimed limitations, not that which makes it obvious,” and by using “such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention.” *Lockwood*, 107 F.3d at 1572, 41 USPQ2d at 1966.” *Regents of the University of California v. Eli Lilly & Co.*, 43 USPQ2d 1398.

Further, for a broad generic claim, the specification must provide adequate written description to identify the genus of the claim. In *Regents of the University of California v. Eli Lilly & Co.* the court stated:

“A written description of an invention involving a chemical genus, like a description of a chemical species, ‘requires a precise definition, such as by structure, formula, [or] chemical name,’ of the claimed subject matter sufficient to distinguish it from other materials.” *Fiers*, 984 F.2d at 1171, 25 USPQ2d 1601; *In re Smythe*, 480 F.2d 1376, 1383, 178 USPQ 279, 284985 (CCPA 1973) (“In other cases, particularly but not necessarily, chemical cases, where there is unpredictability in performance of certain species or subcombinations other than those specifically enumerated, one skilled in the art may be found not to have been placed in possession of a genus ...”) *Regents of the University of California v. Eli Lilly & Co.*, 43 USPQ2d 1398.

The MPEP further states that if a biomolecule is described only by a functional characteristic, without any disclosed correlation between function and structure of the sequence, it is “not sufficient characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.” MPEP § 2163. The MPEP does state that for a

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generic claim the genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus. MPEP § 2163. If the genus has a substantial variance, the disclosure must describe a sufficient variety of species to reflect the variation within that genus. See MPEP § 2163. Although the MPEP does not define what constitute a sufficient number of representative species, the courts have indicated what do not constitute a representative number of species to adequately describe a broad generic. In *Gostelli*, the courts determined that the disclosure of two chemical compounds within a subgenus did not describe that subgenus. *In re Gostelli*, 872, F.2d at 1012, 10 USPQ2d at 1618.

The MPEP lists factors that can be used to determine if sufficient evidence of possession has been furnished in the disclosure of the Application. These include “level of skill and knowledge in the art, partial structure, physical and/or chemical properties, functional characteristics alone or coupled with a known or disclosed correlation between structure and function, and the method of making the claimed invention. Disclosure of any combination of such identifying characteristics that distinguish the claimed invention from other materials and would lead one of skill in the art to the conclusion that the applicant was in possession of the claimed species is sufficient.” MPEP § 2163. While all of the factors have been considered, a sufficient amount for a *prima facie* case are discussed below.

With respect to the breadth of the claims, claims 38,49-50 are drawn to polypeptides that are capable of being encoded by a particular method. Claim 45 is drawn to polypeptides. Since claim 45 as amended recites ‘comprising an amino acid sequence..’ (as opposed to ‘comprising one of the amino acid sequences ...’) claim 45 is open to include any portion of the sequence. For example, GWR is an amino acid sequence of SEQ ID NO:74. Further, claim 45 is drawn to

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polypeptides comprising at least one conservative amino acid substitution or deletion as recited in claim 45az. At least one can mean more than one.

*(1) Level of skill and knowledge in the art:*

The level of skill in the art is high.

*(2) Partial structure:*

In the instant case, the polypeptides of claims 38,49-50 are claimed as products by a process. In particular, the process includes obtaining primers and amplifying nucleic acids to obtain polypeptides. However, the recited steps do not impart distinctive structural characteristics to the final product (see MPEP 2113). For example, there could be many polypeptides (which could be structurally and functionally different) that could be identified by the instant claims. Of the many possible polypeptides, no common core structure is taught. For example, the protein source used to obtain a primer does not uniquely define the peptide that is encoded by a nucleic acid amplified by the primer. Primer oligonucleotide sequences can amplify nucleic acids that encode for a wide range of proteins.

The polypeptides of claim 45 are open to include any portion of the sequence and to polypeptides comprising at least one conservative amino acid substitution or deletion. For example, there can be any number of deletions such as 1,2,3,4,5,6,7,8,9,10,11,12,13,14,15, or more deletions. Likewise, there can be any number of substitutions. Hence, there is substantial variability in the genus. Examples of polypeptides are recited in the claims. However, specific examples of substitutions and deletions are not provided.



Since there are a substantial variety of polypeptides possible within the genus, the examples do not constitute a representative number of species and do not sufficiently describe the genus claimed (see Gostelli above).

*(3) Physical and/or chemical properties and (4) Functional characteristics:*

The peptides of claim 45 are 'antimicrobial peptides'. The peptides of claims 38,49-50 are also described as 'antimicrobial peptides'. The specification, page 10-11, discuss general amino acid sequences. It is noted that the elected species, for example, does not fall within the scope of the sequences recited on page 10-11. Further, tables 4 and 11 and the figures (such as 17) recite various antimicrobial sequences. However, there is no correlation provided between structure and function. There is no teaching in the specification regarding which and/or how many amino acids can be substituted or deleted to obtain an antimicrobial peptide. In particular, no common structural core is taught for the polypeptides.

Although claim 38 recites that the peptide is made by a process in which it is capable of being amplified by PCR with particular primers, such a description does not provide any common attributes or characteristics that identify the antimicrobial peptides of the instant invention.

Taken together, there are no common attributes or characteristics that identify the antimicrobial peptides of the instant claims. One of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe the genus and that there is a lack of the knowledge in the art regarding which amino acids can vary to maintain the function and thus that the applicant was not in possession of the claimed genus.

*(5) Method of making the claimed invention:*

The specification (specifically page 23) describes the synthesis of polypeptides. Figures 13-15 show the impact of particular peptides (NRC-15, NRC-13, NRC-12, compare Table 4) against a specific bacteria. However, the method of making such peptides does not support the scope of the instant claims.

As stated *supra*, the MPEP states that written description for a genus can be achieved by a representative number of species within a broad generic. It is unquestionable that claim(s) 38,45,49-50 is/are broad and generic, with respect to all possible polypeptides encompassed by the claims. The possible structural variations are numerous. Although the claims may recite some functional characteristics, the claims lack written description because there is no disclosure of a correlation between function and structure of the polypeptides beyond those polypeptides specifically disclosed in the examples in the specification. Moreover, the specification lacks sufficient variety of species to reflect this variance in the genus. While having written description of polypeptides identified in the specification tables and/or examples, the specification does not provide sufficient descriptive support for the myriad of polypeptides embraced by the claims.

The description requirement of the patent statute requires a description of an invention, not an indication of a result that one might achieve if one made that invention. See *In re Wilder*, 736, F.2d 1516, 1521, 222 USPQ 369, 372-73 (Fed. Cir. 1984) (affirming rejection because the specification does “little more than outlin[e] goals appellants hope the claimed invention achieves and the problems the invention will hopefully ameliorate.”) Accordingly, it is deemed that the specification fails to provide adequate written description for the genus of the claims and

does not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the entire scope of the claimed invention.

***Response to Arguments/Amendments – Written Description***

Claim 38 was previously rejected as failing to comply with the written description requirement. Thus applicants arguments are considered with respect to this previous rejection.

Applicants argue that as amended claim 38 is drawn to an initial peptide selected from a Markush group. Applicants argue that the terms in the Markush group are known to the skilled person and the skilled person is well aware of the structure and function of polypeptides encompassed by these terms.

Applicant's arguments filed 8/1/07 have been fully considered but they are not persuasive.

It is noted that the instant claims are not drawn to the members of the Markush group referred to by applicant. Claims 38,49-50 are directed to a polypeptide that is encoded by a nucleic acid sequence that is identified by a particular process. MPEP 2113 states

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product.

In the instant case, the recited steps do not impart distinctive structural characteristics to the final product. Further, although the claims have been amended to read on specific initial peptides (claim 38, 49-50) such method steps do not impart distinctive structural characteristics to the final product. Since the initial peptides are used to obtain primers, such steps do not do not impart distinctive structural characteristics to the peptide itself. For example, the protein source

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used to obtain a primer does not uniquely define the peptide that is encoded by a nucleic acid amplified by the primer. Primer oligonucleotide sequences can amplify nucleic acids that encode for a wide range of proteins. For these reasons and the reasons set forth previously the rejection of claim 38 is maintained.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**Claim 45** is rejected under 35 U.S.C. 102(a) as being anticipated by Patrzykat et al. (Antimicrobial Agents and Chemotherapy Aug 2003, v47no8 pages 2464-2470) as evidenced by the wayback machine (<http://www.archive.org> entry for aac.asm.org (4 pages) and the actual link to aac.asm.org dated Aug 5 2003 (1 page)).

As discussed above, for purposes of searching for prior art the priority date of claim 45 is 8/22/03.

Patrzykat teach the antimicrobial peptide GWRTLLKKAEVKTVGKLALKHYL (abstract) which is identical to the peptide recited in claim 45(i) (SEQ ID NO:74).

As evidence that the August 2003 article is proper 'prior art' the entry from the wayback machine shows that the aac.acs web site (the publisher of the Patrzykat et al. article) was updated

on August 5, 2003 (see attached). The August 5, 2003 entry on the aac.acs web site (see attached) reveals that the August 2003 issue was posted and publicly accessible as of August 5, 2003. As such, the wayback machine is merely cited to show that Patrzykat et al. is prior art.

**Claims 38,45, 49-50** are rejected under 35 U.S.C. 102(b) as being anticipated by Barrett et al. (US 5,654,276).

Barrett teach a peptide of sequence GCGWDLDGWRVIDC (SEQ ID NO:32 table 1). The peptide of Barrett comprises an amino acid sequence (i.e GWR) of SEQ ID NO:74 (GWRTLLKKA~~EV~~KTVGKLALKHYL) of the current invention.

Since claim 45 as amended recites ‘comprising an amino acid sequence..’ (as opposed to ‘comprising one of the amino acid sequences ...’) claim 45 is open to include any portion of the sequence. For example, GWR is an amino acid sequence of SEQ ID NO:74.

Further, the peptide of Barrett comprises at least one conservative amino acid substitution or deletion as recite in claim 45az. For example, when TLLKKA~~EV~~KTVGKLALKHYL (at least one deletion) is deleted from SEQ ID NO:74 the sequence comprises GWR. The peptide of Barrett comprises GWR thus meeting the claimed limitations.

Barrett does not expressly teach that the peptide GCGWDLDGWRVIDC is antimicrobial. Since the peptide of Barrett meet the structural limitations the functional limitations are met absence evidence to the contrary (see MPEP section 2112.01).

Claims 38,49-50 are directed to a polypeptide that is encoded by a nucleic acid sequence that is identified by a particular process. For product by process claims section 2113 of the Manual of Patent Examination Procedure states:

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“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”

Since Barrett teach a peptide that meets the structural limitations the claim limitations are met absent evidence to the contrary. Further, the recited steps do not impart distinctive structural characteristics to the final product.

**Claims 38,45,49-50** are rejected under 35 U.S.C. 102(b) as being anticipated by Douglas et al. (as disclosed in IDS (entry #10) although IDS erroneously lists publication date as 2000, the correct publication date is March 2001 (see entry #14)).

Claims 38,49-50 are directed to a polypeptide that is encoded by a nucleic acid sequence that is identified by a particular process. For product by process claims section 2113 of the Manual of Patent Examination Procedure states:

“[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.”

Douglas et al. teach peptides, more specifically antimicrobial peptides that can be obtained from the genomic DNA of winter flounder (page 138 section 2.1). Using pleurocidin as the initial peptide of interest (page 138 paragraph 3) a nucleotide sequence was identified. Based on the flanking region, oligonucleotides were obtained (figure 1). Pleurocidin like genes were then obtained via amplification (results in figure 2). The end product, an antimicrobial peptide, is obtained from fish and could be identified by the method of the current application. Therefore,

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the product is the same as or obvious from a product of the prior art so claims 38,49-50 are anticipated by Douglas et al. Further, the recited steps do not impart distinctive structural characteristics to the final product.

Specifically, Douglas teach peptides (Figure 4) such as WF2 in which the mature peptide includes the sequence GW. As such, the peptide of Douglas comprises an amino acid sequence (i.e GW) of SEQ ID NO:74 (GWRTLLKKAEVKTVGKLALKHYL) of the current invention.

Since claim 45 as amended recites ‘comprising an amino acid sequence..’ (as opposed to ‘comprising one of the amino acid sequences ...’) claim 45 is open to include any portion of the sequence. For example, GW is an amino acid sequence of SEQ ID NO:74.

Further, the peptide of Douglas comprises at least one conservative amino acid substitution or deletion as recite in claim 45az. For example, when RTLLKKAEVKTVGKLALKHYL (at least one deletion) is deleted from SEQ ID NO:74 the sequence comprises GW. The peptide of Douglas comprises GW thus meeting the claimed limitations.

### ***Response to Arguments/Amendments – 102 rejection***

Claim 38 was previously rejected using the above cited reference. Thus applicants arguments are considered with respect to this previous rejection.

Applicants argue that Douglas does not teach or suggest a method comprising a particular step. Applicants argue that there is no guidance provided as to how to isolate polypeptides.

Applicant's arguments filed 8/1/07 have been fully considered but they are not persuasive. As recited previously, (see MPEP 2113 above) claim 38 is a product by process claim. Patentability is based on the product itself. As stated above, if the product is the same as

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or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. Hence, arguments about the method of Douglas (as cited in IDS) are not found persuasive. The product is a polypeptide. Douglas teach polypeptides such as those shown in Figure 4. It is noted that MPEP 2113 further states

The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product.

In the instant case, the recited steps do not impart distinctive structural characteristics to the final product. Further, although the claims have been amended to read on specific initial peptides (claim 38, 49-50) such method steps do not impart distinctive structural characteristics to the final product. Since the initial peptides are used to obtain primers, such steps do not do not impart distinctive structural characteristics to the peptide itself. For example, the protein source used to obtain a primer does not define the peptide that is encoded by a nucleic acid amplified by the primer. Primer oligonucleotide sequences can amplify nucleic acids that encode for a wide range of proteins. For these reasons and the reasons set forth previously the rejection of claim 38 is maintained.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RONALD T. NIEBAUER whose telephone number is (571)270-3059. The examiner can normally be reached on Monday-Thursday, 7:30am-5:00pm, alt. Friday, EST.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cecilia Tsang can be reached on 571-272-0562. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ronald T Niebauer/  
Examiner, Art Unit 1654

/Anish Gupta/  
Primary Examiner, Art Unit 1654